

Offshore Wind Finance

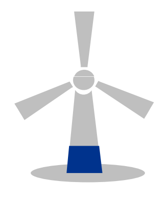
December 2017

Offshore Wind in Taiwan - an Overview

Approximately USD20bln capex for initial 3GW to be installed by 2025

Phase 1

2012 / 7 / 3



Demo-Incentive Program

16 MW

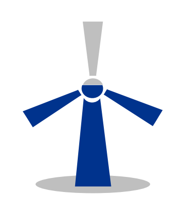


4 Demonstration turbines

- Transitional phase of a 3-phase development plan

Phase 2

2015 / 7 / 2



Potential site planning application

520 MW



3 Demonstration wind farms

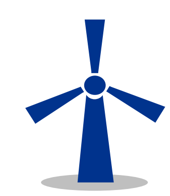


Potential site development

- 36 potential zones announced by ITRI for developers to kickoff on EIA study

Phase 3

End of 2017



Zonal Development

5,500 MW



Zonal development

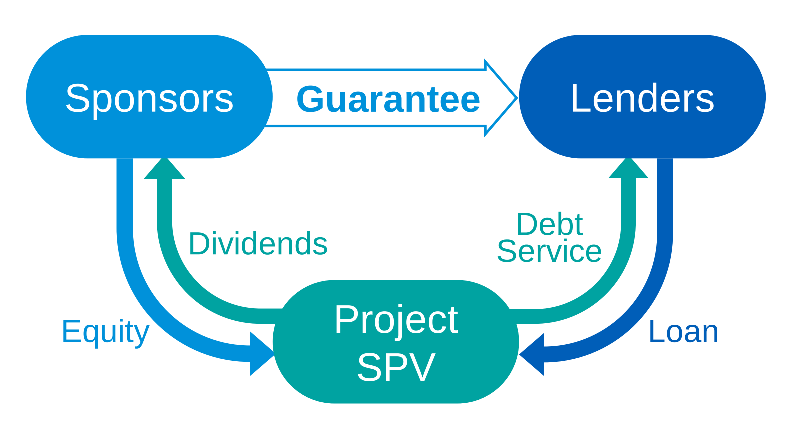
- EIAs approved for >10GW capacity
- Initial 3GW to be on line by 2025 for currently announced FIT rate
- Additional 2.5GW by 2030 for tariffs set by competitive bid

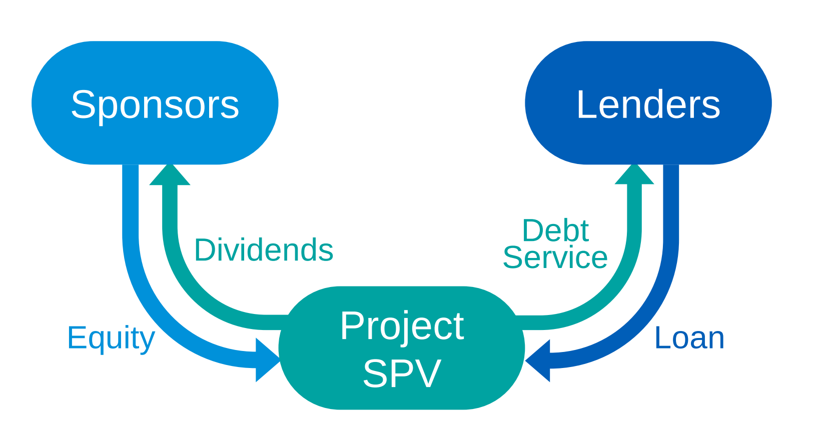


Funding options for projects

Funding may be sourced from sponsors or from banks on a non-recourse basis

“On-balance sheet” finance	“Non-recourse” finance





“On-balance sheet” finance

- All the required capital effectively raised on Sponsors’ balance sheet
- More flexibility in commercialization
- Sponsors’ credit and balance sheet limits the investment
- Sponsors universe limited to deep-pocket strategic investors, limiting competition

“Non-recourse” finance

- A part of the capital borrowed from lenders on the cash flow and balance sheet of the project– “PROJECT FINANCE”
- Need to address lenders’ requirements, i.e., less flexibility
- Can leverage the investment with the merits of the project
- Open up the project opportunity to wider range of investors, leading to more competitive market



Project finance basics

In project finance, payment of loans will rely on the business of a stand alone entity to carry out the project ("Project SPV")

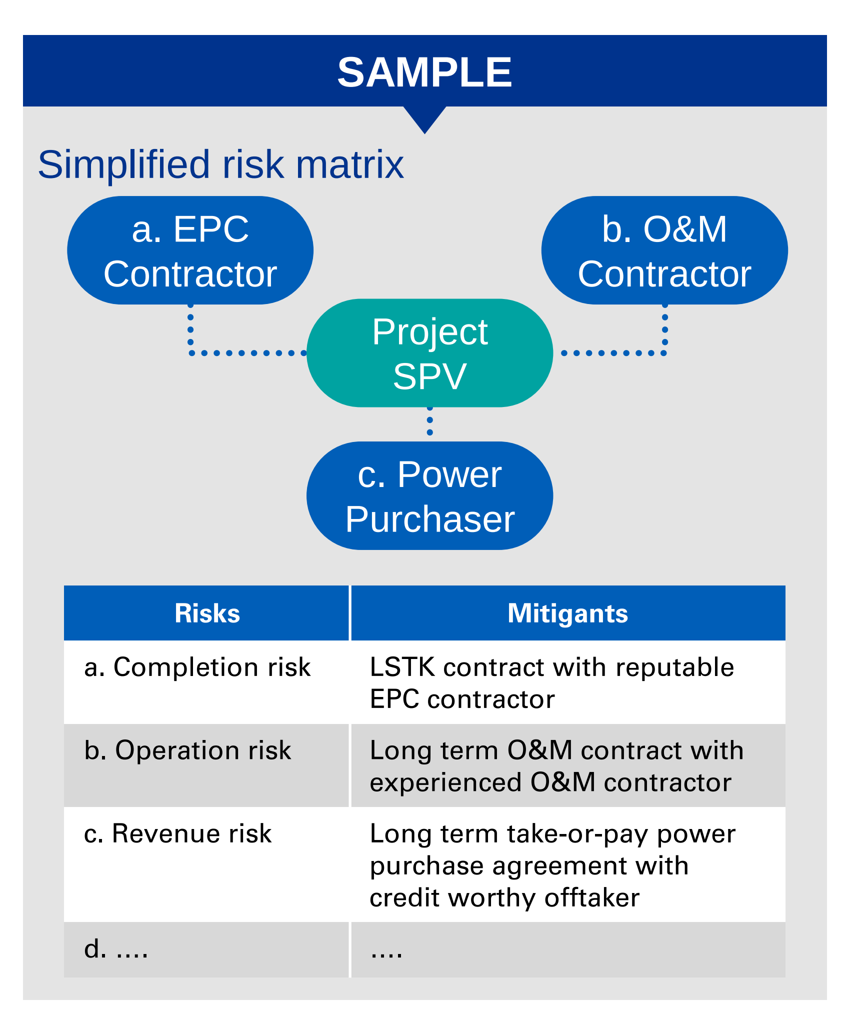
- Hence, predictability of the business of the borrower – not that of the sponsors or their balance sheet – is the key
- Entire business of Project SPV serves as lenders' collateral

Business risks associated with the project are shared with project counterparties through contracts

- Business risk of the borrower, to a large extent, will be transformed into performance risk of the counterparties
- In principle, a party who can best manage the risk will bear the risk
- Creditworthiness of counterparties is important credit consideration

Extensive documentation is required to clearly set out obligations, rights and consequences in variety of scenario

- Documents will have to satisfy lenders' standards and requirements that would not otherwise be required



Risks	Mitigants
a. Completion risk	LSTK contract with reputable EPC contractor
b. Operation risk	Long term O&M contract with experienced O&M contractor
c. Revenue risk	Long term take-or-pay power purchase agreement with credit worthy offtaker
d.	....



Conventional power project structure

- **Lenders require a single contractor ("EPC Contractor") to "wrap" the obligations of all the suppliers to take construction risks**

Equity Investors

Lenders

Power Purchaser

O&M Contractor

Project Company

Fuel Supplier

EPC Contractor

Onshore wind project structure

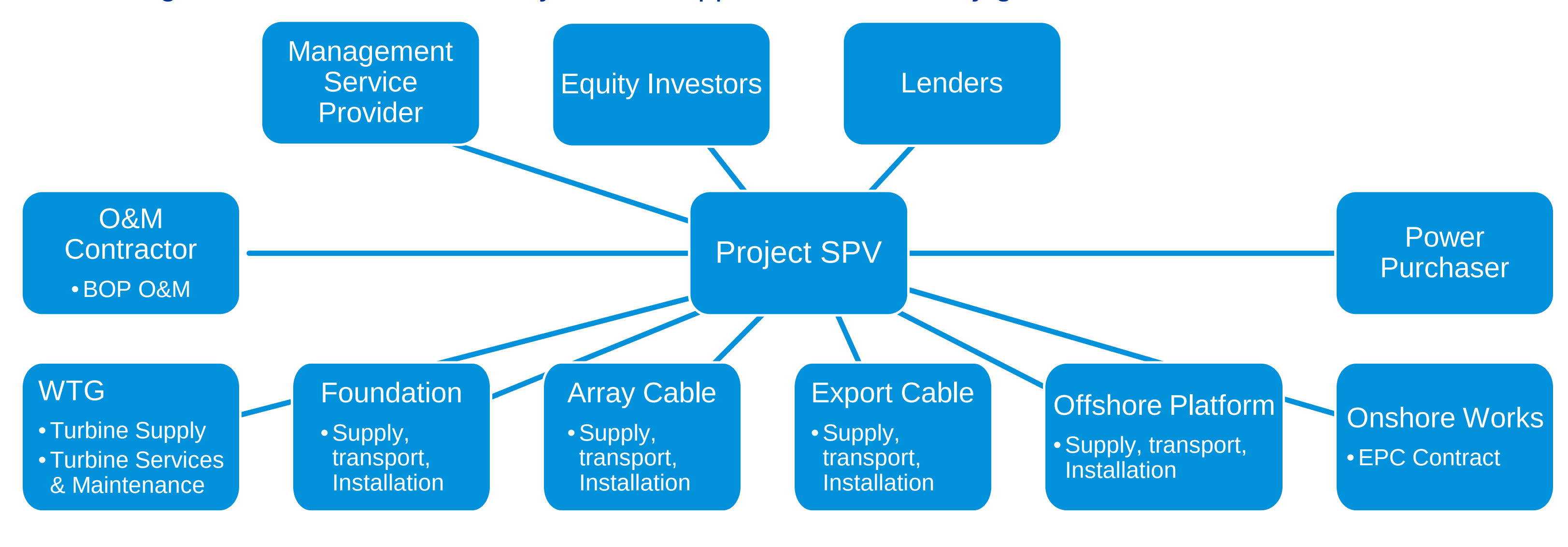
- **Limited interface risk in bifurcated contract structure accepted by banks**
- **O&M service linked to wind turbine generator (“WTG”) supply**
- **“Wind risk” assumed by banks with yield analysis (P50, P90, P99)**

Equity Investors
Lenders
Power Purchaser
O&M Contractor
Project SPV
WTG Supplier
BOP Contractor



Offshore wind project structure

- **Multiple suppliers from distinct industries, with no single party naturally position to manage construction risk across the value chain**
  - Supply, transportation and installation works “wrapped” in several key packages to reduce interface risk
  - Required skill sets often sourced from experienced sponsors under Management Services Agreement
  - Reliance on risk assessment driven by technical advisor (limitation of interfaces, contingency sizing, etc)
- **Wind turbines are typically “new” designs with little track record as a result of continuous upscale**
  - Long term WTG maintenance by turbine supplier with availability guarantee





Trends in renewable project finance (1)

Trend in OSW project finance in Europe

In 2016, EUR7.6bln total non-recourse debt were raised for offshore wind projects

- Over the past several years, total volume increased by >3.5 times with deal count almost doubled
- Majority (EUR5.3bln) to finance construction with the balance to refinance construction and operations

Successful precedents led to improved debt terms

- Gearing:
  67:33 (2012) >> 79:21 (2017)
- Margin:
  250bps (2012) >> 170 – 180bps (2017)

OSW project finance in Europe 2010-2016

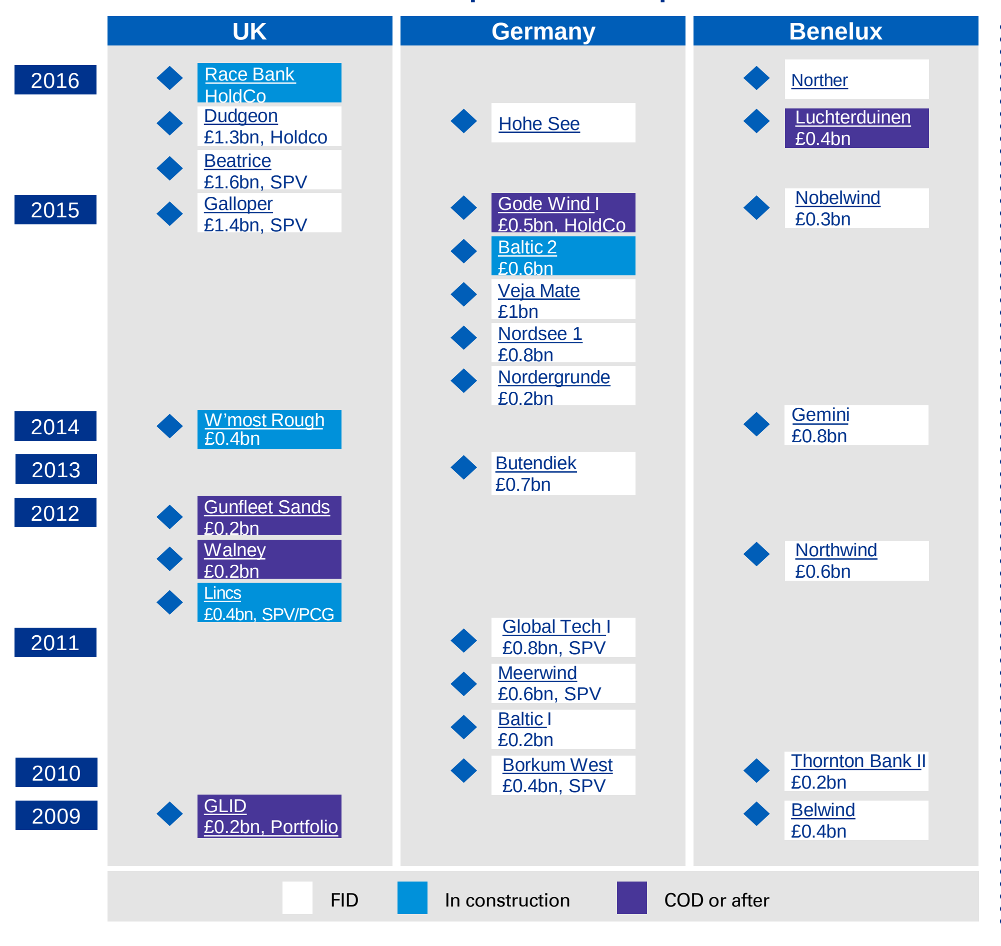
mEUR
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2009: Boreas 220 MW; Belwind 165 MW
2010: C-Power2 295 MW; Borkum West 2 200 MW
2011: Meerwind 288 MW; Global Tech 1 400 MW; Baltic 1 48 MW
2012: Walney 367 MW; Northwind 216 MW; Lincs 270 MW; Gunfleet Sands 172 MW
2013: London Array 630 MW; Butendiek 288 MW
2014: Westermost Rough 210 MW; Wester-meerwind 144 MW; Gemini 600 MW
2015: Veja Mate 400 MW; Nordsee1 332 MW; Norder-gründe 111 MW; Nobelwind 165 MW; Galloper 336 MW; Belwind 165 MW
2016: Beatrice 588 MW; Dudgeon 402 MW; Merkur 400 MW; Norther 370 MW; Rentel 309 MW; Luchter-duinen 129 MW; Walney 367 MW

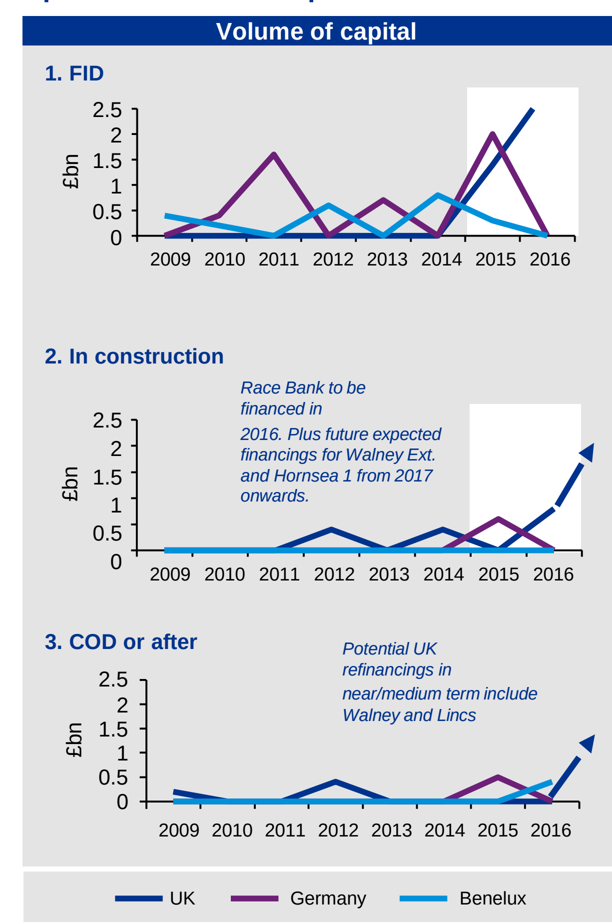
Source: WindEurope



Trends in renewable project finance (2)

External debt had an important impact on OSW development in Europe







Trends in renewable project finance (3)

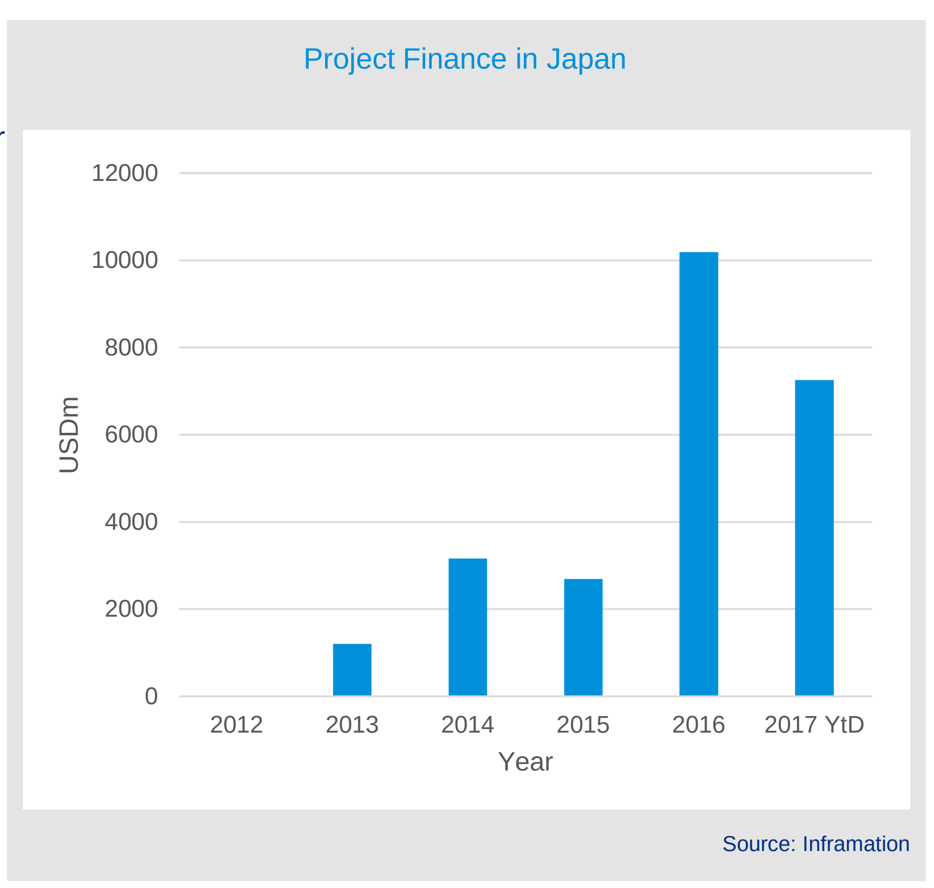
Development of project finance market in Japan fueled by FIT

Until early 2010s project finance was not common in the bank market in Japan

- A handful of players active in cross boarder space

Project finance volume surged post introduction of FIT

- Initial Solar PV transactions led by experienced sponsors, lenders and counterparties
- FIT supported deal flows
- Market leaders educated inexperienced lenders, leading to diversification of fund providers and competition





Taiwan OSW - specific issues

- **Supply chain issues**
  - Forex risks due to lack of local suppliers
  - International suppliers experienced in OSW work but unfamiliar with local suppliers and practices
- **Availability of infrastructure**
  - Upgrade of grid capacity required
  - Currently lacking heavy loading / O&M harbor
- **Regulatory / commercial framework**
  - Very simple and non-negotiable PPA
  - Taipower set to be unbundled and privatized
- **Natural environment**
  - Exposure to natural perils, e.g., typhoons and earthquakes
  - Capacity of insurance market
- **Project finance market**
  - Local lenders inexperienced with project risk assessment or structuring
  - Experienced international lenders keen to get involved but lacking access to NTW funding
  - Illiquid forex swap and IRS market



Taiwan OSW - some suggestions

- **International / local partnership**
  - Project development: International sponsors to bring technical and commercial expertise in OSW development while local partners add values in the regulatory process and local stakeholder management
  - Design, procurement and construction: International and local suppliers to collaborate to manage interface risk; local suppliers to adopt to “bankability” requirements; development of local value chain
  - Debt structuring and funding: International lenders to guide local banks in risk assessment and structuring with local lenders to assist international players in understanding local issues, funding
- **Public sector involvement**
  - Predictability of policy framework and streamlined regulatory process
  - Infrastructure upgrade
  - ECA finance and credit programs
- **Insurance capacity**
  - Adequate capacity for insurance, “business interruption” in particular, to support the entire OSW program
- **Involvement of experienced advisors**
  - Legal, technical, insurance and financial advisors
- **Successful first project!**



KPMG can work with Clients through its growth strategy

We bring our local insights, international expertise and network together

	1 Market Entry	2 Partnering Strategy	3 Reaching FID	4 Capital recycling	5 Managing assets	6 Defining future strategy
Key stages of market growth / entry	• Understanding local regulations, policy environment and subsidy processes	• Potentially partner with a local utility offering experience in the local market	• Ensuring optimal local financial and tax structures	• Capital recycling to facilitate further investments	• Support throughout the asset life	• Where or what next? • How will you continue to grow?
Key organisations	• Taiwanese Government and associated bodies	• Local utilities possess knowledge of the local energy market	• KPMG's global team and local presence can help you navigate this space	• Funds and insurance companies may look to partner or acquire minor stakes post FID	• KPMG can provide professional services through asset life	• KPMG can provide strategic advice on growth opportunities and market entry options
KPMG Services	• Energy strategy • Local government policy advisory • Regulatory advisory • Cyber security • Risk consulting	• Strategy • Corporate finance, M&A • Transactions Services • Management consulting • Tax advisory	• Tax advisory • Financial advisory (Corporate finance, M&A) • Modelling	• Financial advisory (Corporate finance, M&A) • Modelling • Debt capital markets	• Accounting and audit services • Management consultancy • Tax • Pensions • Data analytics	• Strategy • Corporate finance



Recent KPMG OSW experience

Client	Year	Deal description	KPMG's role	Asset class	Value
ITOCHU	Dec, 2016	• Acquisition of a 22.5% stake in Butendiek, a 288 MW German offshore wind farm from Danish pension fund PKA	• Buy-side M&A advisor	Offshore wind	€134m equity
e·on	Jun, 2016	• Sale of 50% of the 385MW Arkona offshore wind project to **Statoil** at FID • Deal involved new SHA, CMA, OMA, AMA and ES documents	• Sell side M&A advisor • Advised on contract structuring, key agreement terms and negotiations	Offshore wind	> €1bn EV
REPSOL	May, 2016	• Sale of 100% of a UK offshore wind business by Repsol to China's **SDIC Power**, a State Owned Enterprise ("SOE") • Involved structuring the 588MW Beatrice project: Scotland's largest ever infrastructure financing (£2.4bn capex/£1.6bn debt)	• Sell side M&A advisor • Managed interplay of M&A and Beatrice debt process	Offshore wind	> £200m sale > £2bn project structuring
VATTENFALL	2015	• Sale of 49% of the 150MW Ormonde offshore wind project to **AMF** • Deal involved new SHA, AMA, OMA and PPA contracts	• Sell side M&A advisor • Advised on contract structuring, key agreement terms and negotiations	Offshore wind	> £480m EV
e·on	2015	• Sale of 24.9% of the 400MW Rampion offshore wind project to **Enbridge Inc.** shortly post FID	• Sell side M&A advisor	Offshore wind	> £1bn EV
DONG energy	2015	• Structured German institutional investment in the 330MW Gode Wind 1 offshore wind project of **DONG Energy** through a HoldCo rated bond	• Debt advisor	Offshore wind	€556m debt
e·on	2015	• Sale of 25% of the 400MW Rampion offshore wind project at FID to the UK **Green Investment Bank**. Deal closed as an unlevered structure although marketed as an unlevered or levered structure • Deal involved new SHA, CMA, AMA, OMA and PPA	• Sell side M&A and debt advisor • Advised on contract structuring, key agreements terms and negotiations	Offshore wind	> £1bn EV
VATTENFALL	2014	• Sale of 49% of 288MW Sandbank offshore wind project to **Stadtwerke München** at FID • New SHA, CMA and OMA	• Sell side M&A advisor • Advised on contract structuring, key agreements terms and negotiations	Offshore wind	> €1bn EV
e·on	2014	• Sale of 80% of the 207MW Rodsand 2 offshore wind project to **SEAS-NVE.** Included a new project debt structure • New long term SHA, OMA, AMA and ESA	• Sell side M&A and debt advisor • Advised on contract structuring, key agreements terms and negotiations	Offshore wind	> £400m EV



KPMG

Thank you



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